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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Heinz Eisenschmid

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EXAMINER

PRUCHNIC, STANLEY J

ART UNIT

PAPER NUMBER

2859

DATE MAILED: 03/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/723,419	Applicant(s) EISENSCHMID ET AL.	
	Examiner Stanley J. Pruchnic, Jr.	Art Unit 2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 15 February 2006 has been entered.

Response to Arguments

2. Applicant's arguments filed 15 February 2006 have been fully considered but they are not persuasive as applied to the amended claim(s).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (*i.e.*, a provided means for "temperature measurement") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Examiner has already agreed that TRAH discloses only a "micropump", lacking the current-measurement device as claimed by Applicant in claim 1 and lacking the step of determining an electrical resistance of the heating element by measuring an instantaneous electrical current at the heating element as claimed by Applicant in claim 11. TURON-LAGOT is relied upon for teaching the art-recognized equivalence of measuring an electrical resistance of an electrical heating element and determining a

temperature of a resistor. Applicant's argument that TURON-LAGOT teaches away from the particular location of the heating element being inside the fluid-chamber is not persuasive as applied to the amended claims. Although TURON-LAGOT discloses the electrical resistance heat generating means is placed inside a metallic sensor, against a face of said sensor in contact with the fluid, TURON-LAGOT does not teach a criticality to the location being on that face or the other face, in contact with the fluid.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-2 and 4-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Pat. No. 5,375,979 A (TRAH; Hans-Peter) in view of U. S. Pat. No. 4,781,469 A (TURON-LAGOT; Gilbert).

TRAH disclosed a **thermal micropump** (Fig. 1) for pumping a fluid (Col. 1, Line 38) including:

- a **chamber 1** formed by a silicon substrate (4) and a glass "carrier" (7) (referred to by TRAH as a "carrier (7)", and which is also considered by the Examiner to be

a “substrate” as claimed by Applicant in Claim 1 -- the substrate and carrier, one of which is considered a “cover”, together cooperating to form **the working chamber (1) of the thermal pump**, which also is shown to include valves (2,3).

- Further regarding **the chamber**: the chamber of TRAH has an inlet (2) and an outlet (3) which are situated in one of the substrate and the cover, as claimed by Applicant in **Claim 6**.
- Further regarding the materials of **the chamber**: the substrate of TRAH is composed of silicon as claimed by Applicant in **Claim 6**; Alternatively, as described above, the cover of TRAH is composed of silicon as claimed by Applicant in **Claim 7**. Similarly, as described above, each of the substrate and cover are composed of at least a semiconductor (silicon) as claimed by Applicant in **Claim 5**.
- an **electrical heating element** (6), situated in the fluid (Fig. 1) **and situated in the same chamber (1) described above** (through which the fluid is pumped, between the valves 2, 3).
 - Further, the **heating element** (6) is disclosed by TRAH as **acting [functioning] as an actuator** (Col. 2, Line 21 - Col. 3, Line 17) of the micropump, that is by causing the fluid to be heated and thereby to expand and be expelled out through a discharge valve 3.
 - Moreover, regarding the **heating element**: TRAH disclosed preferably “mounting the heating element on [the] carrier. And also disclosed the heating element could be applied according to a thin film technique (“deposited metallic layers”; e.g., Col. 2, Line 36) as claimed by Applicant in Claim 1, but the method of making the device, *i.e.*, “product by process”, can’t serve to distinguish against a device that has the same structure as claimed by Applicant.
- Further, the **device** is disclosed by TRAH having a multilayer construction, as claimed by Applicant in **Claim 10**.

- Further, the heating element (6) is disclosed by TRAH as being a resistor element (situated in the chamber, as described above), but TRAH does not explicitly describe the heating element to comprise a PTC resistor element as claimed by Applicant in **Claim 9**, and TRAH does not explicitly describe the heating element as having been produced from one of aluminum and platinum, and coated with a dielectric as claimed by Applicant in **Claim 8**.
- **TRAH** further discloses that the device requires, in order to operate as a pump, upon closing of the discharge valve, decreasing the temperature of the heating element (Col. 1, Lines 43-49) in order to cause a decrease in the fluid pressure in the chamber and thereby cause the intake valve (2) to open, to begin a next pumping cycle. Moreover, TRAH discloses the heating element is "switched off" (Col. 3, Lines 1-4). Therefore TRAH inherently requires a means for controlling the temperature of the heating element. TRAH also discloses electrical contacts with the heating elements.

TRAH does not explicitly describe a current measuring unit to infer an instantaneous electrical resistance of the heating element as claimed by Applicant in Claim 1.

TRAH discloses or suggests a device as claimed by Applicant in Claims 1, 2 and 4-10, as described above, comprising an electrical heating element situated in a fluid, the electrical heating element acting as an actuator of a micropump and being situated in a chamber thereof, wherein according to a thin film technique, the heating element is applied to a substrate which is provided with a cover to form a chamber (in the device of TRAN, the same chamber).

With respect to the intended use of the apparatus, *i.e.*, for determining a boiling point of a hydraulic fluid of a hydraulic system: It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Furthermore, the intended use is recited in the preamble. The functional limitations recited in the preamble which have structural implications have been given patentable weight because, although it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim

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following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. See *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

In this instance, the description in the body of the claim draws life and meaning from the functional limitations in the preamble, but only to the extent that they are required: thus the heating element must be able to function as an actuator of a micropump. But since a micropump and a chamber thereof are not positively claimed, they are not considered essential to the claimed invention, but only are considered to further describe the environment of intended use. Similarly, the limitations of **Claim 2**, i.e., for determining a boiling point of a brake fluid of a brake system in a motor vehicle, further recite limitations on the environment of intended use, not further limiting the structure of the claimed invention.

With respect to **Claim 2**: In this instance, the description in the body of the claim does not draw life and meaning from the functional limitations in the preamble, since the functional limitations in the preamble do not have structural implications. **TRAH** further discloses a device capable of use for determining a boiling point of a brake fluid of a braking system in a motor vehicle, since the inlet and outlet could be directly attached to a brake line in a motor vehicle, if so desired. **TRAH** does not explicitly state this intended use, but no further structural limitation is made by the recitation of Claim 2, so these limitations are not considered to have additional patentable weight.

Regarding the term “micropump”: absent a special definition, the term is considered broadly to require the pump to be small, since no particular length or volume scale is provided, the pump disclosed by **TRAH** is broadly considered small enough to be considered a “micropump” as claimed by Applicant.

TRAH, as described above, does not explicitly disclose a current measuring unit as claimed by applicant in **Claim 1**, and the heating element to comprise a PTC resistor element as claimed by Applicant in **Claim 9**, and

the heating element as having been produced from one of aluminum and platinum, and coated with a dielectric as claimed by Applicant in **Claim 8**.

TURON-LAGOT discloses a device for determining a boiling point of a fluid including an electrical heating element (resistor 24) situated in the fluid and a chamber; the heating resistor is applied to a substrate (partition 14) which is provided with a cover 18 to form a chamber 20 (e.g., Figs. 2-3) and a current measuring unit 34 (Fig. 1) to

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infer the instantaneous electrical resistance of the heating element (see Col. 3, Lines 21-24). The sensor 22, having a resistance that varies with temperature, in a second embodiment, as disclosed by **TURON-LAGOT**, is replaced by the single-element heating device 24 (Col. 4, Lines 22-27), being a flat metallic resistor. In this case a sequencer 46 delivers a heating pulse, and the sequencer 46 detects the temperature of the element after the heating pulse.

TURON-LAGOT teaches the art-recognized equivalence of using a separate sensor such as a resistor, a thermistor or a thermocouple, or by measuring the resistance of a heating means (resistor) itself when the resistance changes notably nad has a well known relationship with the temperature (Col. 1, Lines 65 - Col. 2, Line 2; Col. 4, Lines 22-27).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a current measuring unit in combination with a heating/temperature measuring resistor for the heating element as described above for the device of **TRAH** in order to use the heating resistor as a temperature sensor as taught by **TURON-LAGOT**.

Since as described above **TRAH** requires a means for controlling the temperature of the heating element and **TRAH** also discloses electrical contacts with the heating elements, it would have been obvious to substitute for the heating element of **TRAH** a PTC resistor element as claimed by Applicant in **Claim 9** in order to determine when the temperature needs to be changed since the PTC resistor advantageously functions both as a heater and as a temperature sensor as taught by **TURON-LAGOT**.

Regarding **Claim 8**: The materials of the heater are not specified in the applied prior art. **Official Notice** is taken that it would have been obvious to one having ordinary skill in the art at the time the invention was made to produce the heating element from one of aluminum and platinum, since these are well known materials that will heat up when current is passed through them, as required by the heater of **TRAH**, and to coat

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the heater by a dielectric in order to protect from accidentally short circuiting the device as is very commonly done in the art.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in a form PTO-892 and not mentioned above disclose temperature related measurement devices and methods.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to the examiner's supervisor, Diego Gutierrez (Art Unit 2859) who can be reached at **(571) 272-2245**. The Central FAX Number for all official USPTO communications is **571-273-8300**.

8. Any inquiry of a general nature or relating to the status of this application or proceeding may be directed to the official USPTO website at <http://www.uspto.gov/> or you may call the **USPTO Call Center** at **800-786-9199**.

The cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site (www.uspto.gov/), from the Office of Public Records and from commercial sources.

Private PAIR provides external customers Internet-based access to patent application status and history information as well as the ability to view the scanned images of each customer's own application file folder(s).

9. For inquiries relating to Patent e-business products and service applications, you may call the *Patent Electronic Business Center (EBC)* at 703-305-3028 or toll free at 866-217-9197 between the hours of 6 a.m. and midnight Monday through Friday EST, or by e-mail at: ebc@uspto.gov. Additional information is available on the Patent EBC Web site at: <http://www.uspto.gov/ebc/index.html>.



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